ADMIRAL OF THE FLEET SIR HENRY BRADWARDINE JACKSON, R.N., G.C.B., K.C.V.O., F.R.S., was born at Barnsley in 1855. He served in the Zulu War in 1878 and was appointed to the torpedo school on the "Vernon" in 1879. Later his interest became concentrated upon the development of naval signalling. It is on record that in 1891 he urged the trial of Hertzian waves for short-range signalling; it is known that in 1895, when in command of the torpedo-school ship "Defiance," he successfully transmitted signals several hundred yards by reflector apparatus like that of Hertz, but with a Bose type of coherer at the receiving end and a tapper for causing decoherence after the receipt of each morse signal. Sir Oliver Lodge, by means of similar apparatus, had transmitted and received morse signals the preceding year but had made no attempt at application. Sir Henry Jackson was probably the first to make practical use of Hertzian waves, and he was certainly the father of marine wireless communication. In 1899 he assumed command of the "Vulcan" and in November 1901 reported to the Admiralty that by careful tuning he had established communication between two points in the Mediterranean separated by 134 miles. He had developed in 1900–01 a transmitter of his own design, in

which a tuned primary circuit was coupled to a tuned aerial circuit by both condenser coupling and mutual inductance. The aerial was not earthed directly, but indirectly through the coupling condenser—a desirable arrangement on a ship. This transmitter operated on 600 m and 240 m; the inductances and condensers were carefully calculated with the aid of formulæ, and the capacities of typical forms of antenna were measured by laboratory methods. The fruits of a long series of measurements of the range of wireless stations over water and over various kinds of land formation and under miscellaneous atmospheric conditions were given in May, 1902, to the Royal Society, soon after he had gained the Fellowship. Until 1905 he was responsible for the whole development of naval signalling, and official equipment made excellent progress during his period of office. In 1905 he was appointed Third Sea Lord and Controller, and gradually lost touch with practical radio-telegraphy. At the beginning of the War he was appointed to the War Staff at the Admiralty and in May, 1915, became First Sea Lord. At the end of 1916 he left the Admiralty and was made an Admiral of the Fleet. In 1920 he resumed his active participation in wireless by accepting the Chairmanship of the Radio Research Board. In 1924 he acted as Chairman of the Trans-atlantic Telephony Committee. His success in these important offices was largely due to his receptiveness for new ideas. This modernity was strikingly shown by the way he followed up the amateur short-wave movement from 1922 onwards. He died on the 14th December, 1929. In his work for wireless he was conspicuous for his unselfish, far-seeing, scientific efficiency and his avoidance of controversies about priority. He was elected an Associate of the Institution in 1883 and a Member in 1902. W. H. E.

WALTER JUDD was born in October, 1852, and died at Bracknell, Berkshire, on the 20th February, 1930. He entered the service of the Eastern Extension Australasia and China Telegraph Co. in July, 1870, being rapidly promoted to the position of local manager in 1874. He served in this capacity at all the principal stations of the company, including Singapore, Shanghai, Hong-Kong and Penang, and in 1886 he was appointed manager in the Far East. In April, 1897, he became assistant electrician-in-chief in London to the Eastern Telegraph Co. and its associated group of companies, succeeding Mr. H. A. C. Saunders as electrician-in-chief in January, 1905, upon the latter's retirement. Mr. Judd's association with the electrical department of the associated companies signalized the beginning of reorganization and development of improved methods of working, and to his marked ability, untiring energy, and devotion to the companies' interests great advances were due. The primitive methods which survived from earlier days were soon modified in accordance with the more up-to-date principles upon which the present system has developed. The use of more delicate and intricate apparatus, for the design of which he was responsible, permitted the great increase in traffic to be carried. A vast amount of research in the manufacture and balancing of cables was also necessary in order that full advantage might be taken of the benefits accruing from the improved apparatus. The combined results of the investigations carried out under his direction laid the foundation for the present-day methods of working, which have practically revolutionized the art of cable and submarine telegraphy, and with which his name will always be associated. During the War a great strain was thrown upon Mr. Judd and the technical department of the companies, by the necessity for maintaining the all-important cable communications, and for assisting the Government by meeting their many requirements for urgent strategic connections in all parts of the world. With the declaration of the Armistice Mr. Judd intimated his retirement, which took effect in March, 1919, after he had completed 49 years of cable service. He possessed a strong personality, which imbued his staff with confidence and a desire to emulate their leader. He became an Associate of the Institution in 1875, and a Member in 1877. He served on the Council for many years between 1905 and 1919, including a period of office as Vice-President from 1912 to 1915. J. C. B.

JOHN WILLIAM LIEB died at New Rochelle, New York, on the 1st November, 1929, at the age of 69. Born in 1860, he received his early training in electrical engineering at the Stevens Institute of Technology, New Jersey. In 1881 he joined the staff of the Edison Electric Light Co. of New York as a draughtsman, and was soon afterwards engaged in experimental work under Mr. Thomas Edison. In the following year he was appointed chief electrician of the company, and in 1883 chief engineer and technical director of the Italian Edison Co., Milan. He returned to New York in 1893 as a vice-president and general manager of the Edison Electric Illuminating Co. and a vice-president and associate general manager of the newly-formed New York Edison Co., eventually becoming general manager of the latter. In 1928, after 25 years' tenure of these positions, he retired from active service and became senior vice-president of the companies. He was elected a Member of the Institution in 1911, and was also a past-president of the American Institute of Electrical Engineers.